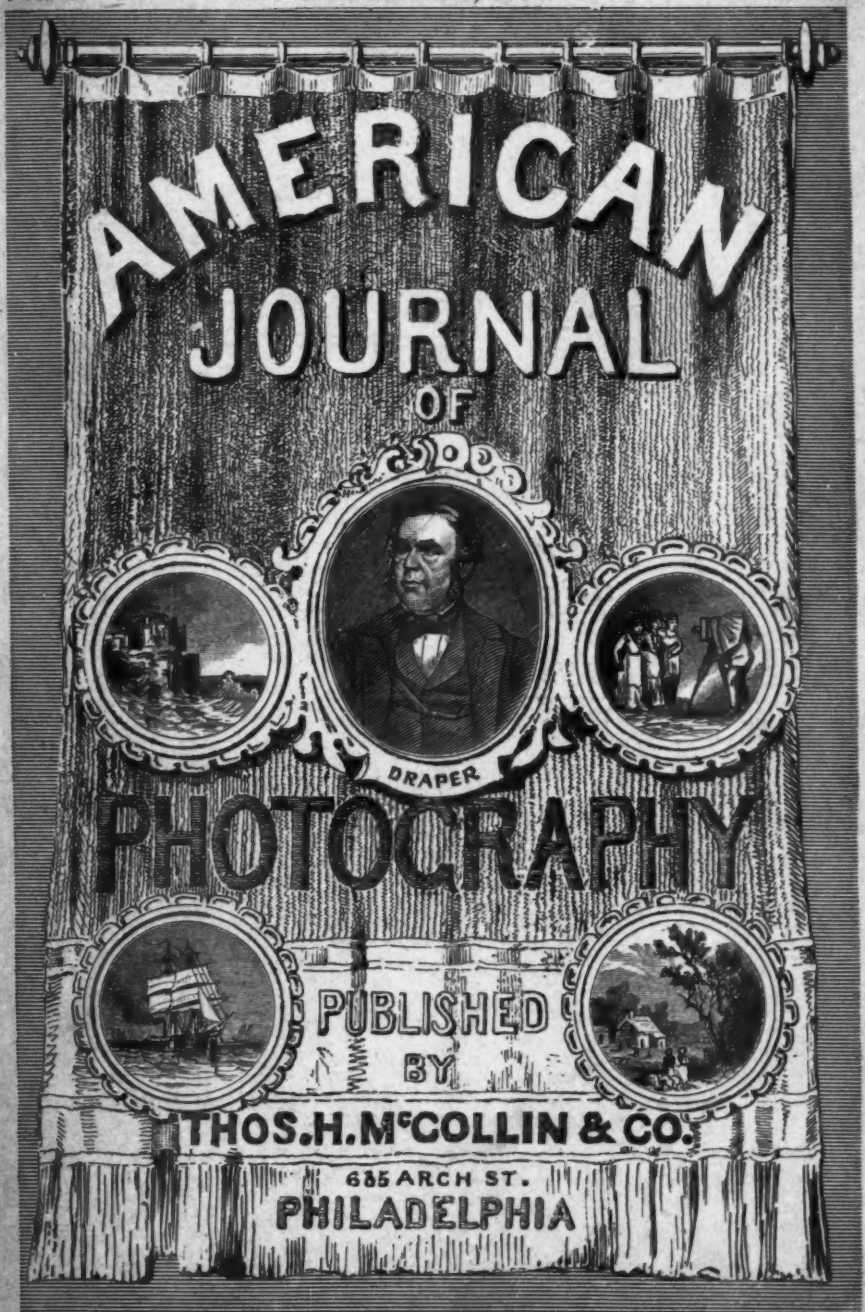
Vol. 8. DECEMBER, 1887. No. 12.



Published Monthly, at $1.00 per Year, in advance. Single Copies, 10 Cts.
Entered at the Philadelphia Post Office as Second-Class Matter.

AMERICAN

JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. 8. PHILADELPHIA, DECEMBER, 1887. NO. 12

AMERICAN
JOURNAL OF PHOTOGRAPHY,
PUBLISHED MONTHLY.
$1.00 per Annum, in Advance.

The Improved Instantaneous Flash Light.

THE beautiful pictures that we have the pleasure of presenting to our readers with this issue of the journal, are a speaking proof of what the new instantaneous flash light can accomplish when properly handled.

The pictures may be accepted as the result of lengthy study undertaken mainly with the object in view of rendering the inflammable compound at once as safe to handle as possible, as small in bulk, and of as reasonable a price.

Could our readers have been present on the evening when the negatives were made, they would have unanimously agreed that each of the above desiderata had been fulfilled.

Without any wish to make this a didactic article upon Photography at Night, we may give the following points in the working of the light, premising, however, that the good effect of the picture will largely depend upon the artistic capabilities of the photographer himself. That Mr. Cassebaum, who made the negatives, succeeded well in the present instance, we need hardly say.

The sitter was posed at a reasonable distance in front of an ordinary neutral-tinted studio background, and had a blonde complexion with considerable color and light hair. The costume was pure white in the first instance, and afterwards of red and blue satin. The flashing-powder was placed on a metallic saucer standing just in front of a *horizontal* gas-burner, which was fed by a rubber tube carrying a compressing-cock. When the latter was squeezed between the thumb and finger the pressure on the tube was removed, and a tongue of flame leaped to the powder on the saucer igniting it instantaneously. A very small amount of the powder was sufficient; we used an ordinary child's thimble as a measure, holding, say, somewhere from nine to eleven grains of the compound, which, let us say here, *contains no gun cotton.*

The light was from six to eight feet distant from the sitter, and but very little smoke could be detected after more than a dozen exposures, no windows having been opened in the meantime. The lens was an 11-inch back focus, 3 B. Dallmeyer, with 1⅞ inch stop. Just before the signal "ready" was given, an assistant interposed a sheet of ground glass close to the saucer containing the powder. This softened the principal light considerably, allowing the white reflector (which was drawn up close to the sitter) to do its work well in illuminating the shadows. Tinfoiled sheets of card were also tried, but plain white seemed to work better.

There was one tinfoil sheet behind the light.

The focussing was easily done by havan assistant hold a lamp near the sitter's head and the train of her dress. The development was thought to be, if anything, rather quicker than on daylight exposed plates. The plates were Cramer's Lightning, No. 35.

None of the six persons present complained of the effect of the bright light on their eyes.

On Development.

WILLIAM H. RAU.

Although much has recently been said concerning various methods of development, there has been really no serious discussion of the respective merits of the slow or rapid method. The experience of myself, as well as of many of the best and most successful workers, has demonstrated that generally the best results are obtained by slow and gradual development, with a solution proportioned properly in Pyro and Alkali, yet weak, and sometimes (when exposure is full) well restrained. The same holds good with wet or dry plates.

Some of the best work, both large and small, which I have seen on wet plates, was made by giving a full exposure in the camera, and using an iron developer weak and well restrained with both acetic acid and gelatine.

The image was developed until all the detail was out, when citric acid and silver with a weak iron was rinsed over the plate until the proper density was obtained; this gave negatives full of detail and without the chalky effect so often seen in old wet plate work. I think the same methods are applicable to dry plate work. All the negatives I made in the Orient were given full exposures and a weak oxalate developer used, so that the development was slow and even; the dishes were rocked gently, as a violent motion *does* tend to hardness, which some miscall brilliancy; just enough motion is necessary to let fresh action on the surface of the plate take place. Take the Taupenaut process—in this the development is very slow with an Alkali Pyro, all detail showing first, after which an acid Pyro developer is put on, which in a little more rapid way builds up the image, giving (as any one who has seen a plate by this process will testify) a very fine grain; of course the albumen used in this process gives quality. In the Emulsion processes the development must be slow to give soft and even negatives. In using wet plates for negatives or transparencies, honey and sugar used in the developer retards and allows a very fine grain deposit. At one time the so-called Berlin Heads were made by using a thin collodion giving a full exposure, a weak, well-restrained developer, and building up the image with acid Pyro intensifier before fixing. My experience with outdoor work is very much in favor of slow plates, full time and a developer well restrained and weak, and if resulting image is too thin, intensification with the Gallic Acid and Silver, which is gradual and slow and gives a negative all that can be desired. Why are all lantern slide plates made slow and developed with a solution much weaker than is used for negatives? Because a finer grain and better gradation of light and shade and freedom from snowiness is necessary. Supposing a rapid plate is used, any one having experience will have noticed that unless the exposure has been short, a fresh developer does not give as good a negative as it will on second application; I would suggest about as follows: supposing either potash or soda is used, if six ounces is the amount of solution necessary, mix two or three ounces of developer and dilute

with water to six and go slowly; it may be tedious, but the resulting negatives will well repay for the time consumed in their production. I have recently seen a number of full-timed but under-devoloped plates, which were thin and full of detail but deficient in density (having been developed with an old solution, and not long enough), brought up to a rich wet-plate appearance by the use of the Gallic Acid and Silver developer, such as published by Messrs. Cassebaum & Bartlett. I think of this intensifier that the quality is obtained by its gradual and slow action, giving such a fine deposit of silver that cannot be equalledwith mercury. In marine views in which there are boats and ships or other objects which are in violent contrast with the water and sky, the weak developer will especially give a good negative. I have seen many a fine marine spoiled by the use of a strong, fresh developer.

In making Bromide enlargements or contact prints, a weak, fresh developer on a full-timed print will give more detail in the middle tints and shadows, and also the required black tone.

The Short-comings of Photography in Relation to Art.

READ BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA BY JOHN BARTLETT.

THE ideal, not the literal rendering of nature is generally accounted the peculiar function of art; but, the truth is, the ideal of the greatest painters and sculptors is not far removed from the matter-of-fact.

The superb horses of the Elgin marbles are almost fac-similes of beautiful living specimens.

Doubtless the gods and heroes approximated human forms, inasmuch as the Greeks had ample opportunity for comparison, denied us by the exigencies of modern life, which compel us to keep our shapes of beauty swathed in thick garments.

The true ideal is not something removed from nature, but the expression of the taste in selection and combination of familiar things, and the closer the artist clings to objective realities the greater is his work accounted.

Now, it is sometimes claimed for photography, by its over-zealous champions, that its intense realism in the translation of the external world is a strong argument in favor of its art status.

To be consistent with the definition of idealism, one might be willing to admit that a subject happily selected by the camera directly from nature would entitle the photographer to the credit due to invention, inasmuch as the mere faculty of inventing a subject does not demand so quick and keen a perception of the beautiful, as the discovery in nature of what is just suited to the purposes of art, which escapes the observation of ordinary people.

But one cannot consistently affirm that the pencil of light does faithfully translate nature upon the sensitive film; that is, nature as presented to our normal vision.

If we lay aside the grave charges, hitherto brought against photography, of falsifying nature, in the incorrect rendering of color into monochrome, a fault which the orthochromatic processes are fast correcting; still we shall have to admit that in the disposition of light and shade, there is a difference between the photograph and the painting—a difference which justifies the painter's method rather than the photographer's.

Let us examine a painting and a photograph of the same subject, a high tower or steeple, against a clear, bright sky.

In the photograph we shall see that the

upper part of the tower or steeple is in much stronger light than the bottom, whilst in the painting or engraving, the higher part is darker than the lower.

Now, which is correct? Does it not stand to reason, that a high tower against a cloudless sky receives greater illumination at the top in the broad expanse of light, just as the photograph renders it, than at the bottom?

Does the painter then violate nature to create artistic effect? Surely his method is the more pleasing and picturesque, but how can it be contrary to nature and yet true and beautiful.

One cannot conceive how any such glaring violation of nature can result in artistic pleasure, how a method seemingly so opposed to common sense, and apparently so out of harmony with the actual order of things can be justified; and yet, justice must give the verdict for the painter.

Art must represent nature as it is presented to our senses, not as things actually are.

But, why does the high tower against a cloudless sky show the upper part dark, to our vision. We must have recourse to a physiological reason for an explanation.

There is a peculiarity of the retina which shows itself when we exercise the eye, and which has its influence in works of art. If we place a bright silver coin upon a dark table and center the eye upon it for a few minutes, when we remove the coin for an instant, there is a white spot in its place, which almost immediately becomes black.

If a red wafer placed upon a sheet of paper, is looked at intently, on removing the wafer the spot will appear green. If we look upon a yellow wafer, on removal it will seem blue, the complementary color always showing itself. This phenomenon is explained by supposing the nerve to be so exhausted by the continued action of the special rays, that it momentarily becomes insensible to their influence, and the effect of the rays of an opposite kind only is transmitted to the brain. Let us see now how this sensibility produces an effect where there is strictly speaking no color, but only light and shade, as in the case of our tower against the sky. We know the highest part of the tower is in the brighest illumination, yet we do not actually so see it. It never so appears to our eye. The reason is obvious; when we look at the steeple or tower, a great part of the retina is opposed to the light of the sky, and on shifting the eye to any particular part, the light which is reflected from that part falls upon the retina where it has been exhausted by the direct light from the sky, and consequently that part appears dark.

A very simple way of convincing oneself of this peculiarity of the retina, is to look intently for a minute at an open window in a room, and then direct your eyes to the wall: the panes will look dark, while the mullions look light.

Painters take advantage of this peculiarity of the eye. They create an effect not only by the contrasts of lights and shades but also by contrasts of colors. The bright carnations for instance, which in themselves would be glaringly offensive, even painful to the eye, are softened down from their exaggeration by some contiguous colors which catch the eye, affect the retina, let us say tire it first, so that the two impressions together produce a harmonious effect, which seems natural although it actually is not so. If the coloring of a picture be too warm, with subtlety of art the painter introduces some color, which, rendering the eye insensible to the red and yellow rays, increases the susceptibility to the blue and violet rays. Every ray of the warm red is actually transmitted to the retina, but the impression is modified by the colder colors. A portion of the red is for a mo-

ment lost, and the picture appears less warm because the opposite rays have prevailing influence. We never really see all the colors in their actual degree of intensity at the same time when placed together. The eye alternately shifts from one to the other, and there is a modification of all. This is the harmony the painter strives after. It is art, and it is at the same time truth to nature. When we look at a beautiful landscape we do not actually see the colors as they are transmitted by vibrations to the nerve of the eye. No one who desires to enjoy a lovely prospect ever fixes his eye intently upon any individual portion of a scene to the exclusion of all the rest, but the eye wanders over the beautiful prospect and returns as from a delightful excursion. It receives a multitude of varied and modified impressions, and the result is a pleasing picture, just such as the painter depicts upon the canvas, only infinitely more beautiful.

If any argument were needed for the beneficence of the Creator, this physiological peculiarity, this optical imperfection might be cited in evidence rather than the eye's perfection as an optical instrument as advanced by the school of Paley. For on it depends our æsthetic pleasure in landscape.

For rendering of form the human eye, guided by the most delicate touch, cannot approach the pencil of light, yet from the tribunal of art judgment must often be pronounced against photography, and the book of the law is again the limitation of our vision.

Instantaneous photography has yielded marvellous results to science. For the mathematician it has verified the direction of the curve of projectiles. To the physiologist it has revealed the curious muscular contortions assumed during animal locomotion; but instantaneousness is generally destructive of art.

Painters do not paint animals in motion in the attitudes Mr. Muybridge has demonstrated to be the actual truth. The painter prefers reality as it presents itself to our visual sense to reality as it is. The law of the persistence of vision must not be violated.

It has been clearly demonstrated that the image impressed upon the retina remains there an appreciable space of time, consequently objects though passing continuously through an unbroken series, seem to the eye to remain unchanged. Instantaneous photography by isolating any special movement in the series really destroys the whole idea of motion.

To compel the artist to represent arrested movement, an actual momentary attitude, because he has to do with a single moment of time in his representation, would be about as wise as to force him to confine himself to the use of those colors only which do not harmoniously modify each other when in juxtaposition, though science can readily prove the isolated existence of the three primary colors in their integrity.

Lessing in his critical essay the Laocoon tells us:

"All appearances of nature which in their actual state are but of an instant's duration, which can be what they are but for a moment, all such appearances, be they pleasing or be they horrible, receive through the prolonged existence which art gives them, a character so contrary to nature that at every repeated view we take of them the impression becomes weaker and weaker, till at last we turn from the contemplation in weariness and disgust.

"La Mettrie, who had himself painted and engraved as Democritus, the laughing philosopher, laughs only at the first time we look at him. Look at him often, and the philosopher is converted into a buffoon and his laugh into a grimace."

This is the impression conveyed by many an instantaneous photograph, because it represents the person, as it were, petrified in the transient state, fixed forever in a position which could not be preserved for more than a single moment. By its scrupulous adherence to reality it takes away the very appearance of reality, motion, life, action.

The greatest painters have devoted their attention to this simulation of motion in their pictures. Rubens was preemenently successful in giving action to his figures.

Fuseli describes the elements of his pictures as "swept along in a gulf of colors, as herbage, trees, and shrubs are whirled, tossed, and absorbed by an inundation." There is a picture of his representing a rustic wedding, filled with figures, dancing, romping, and rolling on the ground; a wonderful display of varied attitudes which creates in the beholder the idea of motion in a masterly manner.

Constantin in his "*Idees Italiennes*" has remarked that "the rapidity and suddenness of movement on the part of the mother of the demoniac boy, in Raphael's great picture of the Transfiguration, is such that the draperies have not had time to follow the impulse of her body. She alone has turned. Her girdle, left behind by her movement, seems to be placed awry, but we soon perceive that if she were to return to her former attitude it would be in its proper place.

Raphael always leaves around his figures the space necessary to indicate the position in which they were at the moment immediately preceeding that chosen for the painting, and is very careful not to fill up the void which they have thus left behind them."

It is thus that Raphael succeeds in giving a spontaneity of movement to his figures which is truly marvelous.

Instances may likewise be selected from the work of Titian, in which the expression of motion and animation is masterly portrayed. In a small picture representing Christ appearing to Mary in the garden, the Magdalene seems fairly to run forward to meet the Lord, her streaming hair and drapery denoting the utmost rapidity of her action, while the hand stretched forth to touch him is suddenly checked at his words "touch me not."

I have never had the privilege of seeing the originals of the great masters, but even in the engravings and photographs which are accessible, the indescribable charm of motion is not lost.

Michael Angelo is rich in illustration of the power of conveying the idea of motion by suggestion, but we have cited enough examples. Even amongst the minor painters we often find the previous position of the figure indicated by the manner in which the apparel is disposed upon the ground or upon some near object, as a chair. We believe the photographer would do well to imitate the painter, if he desires to convey the idea of motion, rather than to seek for action in transient attitude alone. A transient attitude may indeed be depicted but not isolated. There must be other objects associated to carry the mind from one phase to the other, so that it weary not of the perpetual sameness.

How insupportable do those statues of heroes become, upon their solitary pedestals, with arms extended, forever holding the uplifted sword. Yet place the same figure in the same attitude in a painting, marching at the head of a victorious host, with streaming banners, and the mind has something to turn to for relief, and the impression is strong and full of enjoyment.

With what delight have we watched the wonderful play of sun-light upon the waves of the ocean, and how grieved, because our cameras gave so tame a rendering of their beauty.

What has the sensitive film, with its quick perception, done with those peculiar elongated streaks of ever-shifting light, which excite the rapture of the painter, which not only interpret the form of the large masses of water, but also the shape of the tiny waves sculptured upon their surface.

The instantaneous photograph reveals the truth, but the vision of beauty has vanished. "Truth is not beauty" here. In the photograph, in place of the lines of light presented to our vision, we have but rounded dots of the reflected image of the sun, which become elongated by the motion of the waves and are so impressed upon the vision.

Waves breaking upon the beach, for similar reasons, appear different to our eyes from instantaneous photographs of the same. The impression we receive is not of any single wave movement, but the resultant of the rapid presentation of several movements in succession.

The opacity of instantaneous pictures of waterfalls, and the transparency of real ones, is no doubt due to the same physiological cause, the infirmity of our vision.

COMPOSITE PHOTOGRAPHY.

BY ELLERSLIE WALLACE.

READ BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA, DEC. 8th, 1887.

Fronti nulla fides.

Out of the mixed mass of matter that modern photography presents to us, there are some things that would be better suppressed altogether. It is a matter for great regret that considerable numbers of those practising our beautiful art do not scruple to lower it to absolute quackery, sometimes to revolting indecency, often to the multiplication of "cheap and nasty" forms of design, and still oftener to silly pastime or childish absurdity.

With many persons, indeed, the idea seems to be to pursue photography in any and all ways rather than the legitimate ones that have rendered it so useful to the world and so universally and justly admired.

I do not propose to enter at any length into a subject like this, which must have forced itself upon the attention of every thinking man who has any interest in the camera, but there is one of these absurd quackeries that seems to be commanding the serious attention of people of education and attainments and who really ought to know better. I allude to the so-called Composite Photography. Now, it is well to have the desire of hearing new things and seeing new inventions, but when I see such nonsense as Composite Photography gravely treated in a scientific manner by respectable magazines that are read by the general public, and even by the journals devoted to our own craft, I can only say it makes me feel very sorry.

Composite Photography claims to give a normal type or average of the features of a number of individuals; and the assertion that each exposure on each subject partially destroys and partially adds to the image previously existing on the film, is just one of those nicely contrived bits of scientific speciousness that can easily hoodwink any one not understanding the technical part of photography.

If a draughtsman draws on a rough-cast wall with a chunk of dry color, or on the smoothest of paper with the finest pointed pen, he makes an outline in either case, because he attempts the representation of *one object in one place.* Composite Photography attempts the representation of an unlimited number of objects *in one place.*

For the same reason we can not compare the "composite" with a badly

focussed plate, because the latter has an outline no matter if the image be hardly discernible. The form is there just as it is in the drawing on the rough-cast wall.

A "composite" photograph can not claim to be a picture in any sense, because it is merely a jumble of uncombined outlines. The expression "uncombined" is a foolish one perhaps, for two outlines can not be combined upon the same surface or film. Let us take an example from the steroscope: here we have two images the same in size to a hair's breadth, just as the images of any object are when formed upon the retinæ of the two eyes. The only difference between them is that the one taken with the right-hand lens gives a rather more right-hand view of the subject, and *vice versa*. How are they made to combine? By means of an ingenious and beautiful optical trick which diverts the lines of vision from their normal course; the prismoid lenses of the stereoscope acting in the one case, and the simultaneous outward rotation of both eye-balls (binocular vision) in the other, when no stereoscope is used. But suppose we cut a stereo slide in two, set each half in a magic lantern, and project the images on a screen. We may make them overlap, but have we combined them to a perfect whole? No. So, in the stereoscope, the images are but *apparently* combined, and the very beauty of the quasi-solid picture lies in its unreality.

I take it that any picture to be a picture must have an outline. A "composite" of ten sitters made with ten exposures, no matter how carefully graded, would have ten outlines. Is it therefore ten times a picture? It certainly is not ten pictures. We have ten outlines, each striving for the dominant position, but we know that two outlines can no more occupy the same place than two bodies can occupy the same space at the same time.

Let us suppose that twenty of us here to-night were walking on a beach by the sea, and that we determined to make a "composite" foot-print in the wet sand. The form of each man's foot would then be impressed over the preceding one, and the result would be, a lot of tramped down sand, nothing more. This comparison with Composite Photography is a perfectly just one.

Again, suppose the twenty of us were to commission one of the number to go to some sculptor or moulder in clay and request him to make a "composite" statue of the whole twenty, with or without twenty outlines. I should rather expect him to be answered as the old gentleman was who desired the London judge to recover his stolen property for him "Sir, does your mother know you're out?" This comparison, also, is a perfectly just one.

I have recently seen a "type-composite" of some seventy lady graduates of a well-known college. While I am hardly in a position to judge of the intellectual average thus shown, I can say that a phrenologist would look in vain for the bump of photographic-common-sensitiveness or chemico-physical-comprehensiveness.

If I am entirely wrong in this matter, however, and if such a thing as Composite Photography really exists, I shall always regret that I did not attempt some "composites" of European scenery when abroad with my camera a few years ago. "What is sauce for the goose is sauce for the gander," and if it is possible to make a "composite" of eighty different people, it is also possible to make a "composite" of eighty different out-door views. I think that a "composite" of English cathedrals, Dutch windmills, French and German timbered houses,

Belgian hotels-de-ville, Swiss mountain scenery, and street views pretty much everywhere, all combined on the same plate, would have been a new departure in Landscape Photography, and together with the portrait "composites" might well bear the title

"Confusion now hath made his masterpiece."

The Origin and Technology of Photographic Chemicals.

BY FRANK H. ROSENGARTEN.

Eighth paper.—Sulphur Compounds continued.

In our last number we discussed sulphur, but, naturally in so small a space, very briefly. It combines with oxygen in many proportions, forming a great series of compounds with most varying properties, chemical and physical. Thus we have them in equivalents of

	Sulphur.	Oxygen.
Hyposulphurous acid	2	2
Trisulpho-hyposulphuric acid	5	5
Bisulpho-hyposulphuric acid	4	5
Monosulpho-hyposulphuric acid	3	5
Sulphurous acid	1	2
Hyposulphuric acid	2	5
Sulphuric acid	1	3

We have described sulphuric acid, and now propose to treat of the sulphites and hyposulphites, the great necessaries in photography. Sulphite of soda is the compound of soda with sulphurous acid. Sulphurous acid is a colorless gas, having a smell resembling that of burning sulphur, acting acutely on the respiratory organs, though not dangerous when breathed in small quantities. It liquefies at about 14° Fahr., though rarely found in that state except experimentally, and possibly in containers under pressure of several atmospheres, used for artificial ice production. It has a small capacity for latent heat, while the gaseous acid is one of the best absorbers, hence its practical application to ice making has been largely availed of, by permitting the liquid, under great pressure, to expand in coils of pipes surrounded by salt water, in which cans of pure water are immersed. The intense cold thus produced soon freezes the pure water, though not economically, as the gas readily absorbs another equivalent of oxygen, is converted into sulphuric acid, and the metal containers are soon destroyed. It can be made by mixing six parts of peroxide of manganese with one part of sulphur. Heated in a retort the gas goes off, is washed to remove impurities, and collected under water. It is also made by decomposing sulphuric acid by a metal which removes a portion of its oxygen, but which does not decompose water when in contact with active acids. Such metals as mercury or copper are used for this purpose. Iron or zinc treated in this way would yield hydrogen as well as some sulphurous acid. As the gas is very soluble in water it can be trapped, and if saturated with soda gives crystals of sulphite of soda, on evaporation.

Sulphurous acid cannot be decomposed by heat alone, and is formed by the combination of sulphur at very high temperatures. The solution of the gas when exposed to the air absorbs oxygen, and is altered into sulphuric acid, hence its preservation in solution is difficult. Water dissolves about fifty volumes of it, which heat expels entirely, if the solution is boiled a few moments. It is a weak acid, its combinations with the bases being easily decomposed by acids, though expelling carbonic acid from carbonates. The majority of organic coloring matters are changed or discolored by sulphurous acid, sometimes bleaching them and thus becoming useful in silk and woolen industries. Sulphite of soda reduces the

oxides of mercury, silver and gold to the metallic state, and the oxides of copper, iron, lead, and manganese to lower oxides. It is in the form of white prismatic crystals, soluble in four parts of cold water and less than its own weight of boiling water. Sulphuric acid added to it gives rise to the strong odor of burning sulphur by the strong reaction occurring. It consists of one equivalent of soda and one of sulphurous acid and three of water, and should be kept in well-stopped bottles, as by prolonged exposure it is converted into sulphate. The bisulphite of soda is not adapted for photographic work, and therefore need not be described. But space is limited, and we must hurry along and try to invade the realms of hypo, that much abused, but most invaluable of our reagents. Hyposulphite of soda is a compound of hyposulphurous acid and soda. But this acid exists only in combination, and doubtless has never been seen isolated from a base. As the salt of soda is so familiar to all of us in appearance, but few words will describe it as having a mild saline, sulphurous taste, being freely soluble in water, insoluble in alcohol. Its solution dissolves bromide and chloride of silver and all other insoluble compounds of that metal, except the sulphuret, and that salt (and who knows what it is!) resulting from the decomposition of silver salts by light. M. Carey Lea found that an alkaline ammoniacal salt of ruthenium, boiled with hyposulphite, gradually becomes rose colored, ultimately rich carmine color, in strong solution almost black, and then if diluted changing to a magnificent red, far excelling the aniline red colors.

Hypo is readily produced by mixing carbonate of soda, dried, in fine powder with sulphur, heating gradually until the sulphur melts, and stirring the waxy mass, always keeping it hot, that a complete exposure to air may be perfected. Sulphuret of sodium is formed and then gradually the sulphite. When the decomposition is complete, the sulphite is dissolved in water, filtered and boiled with sulphur, is converted into hyposulphite of soda, when by concentration, filtration, and evaporation of the resultant solution, crystals may be obtained, having combined with more sulphur to form the compound of soda with two equivalents of sulphur and two of oxygen. These crystals are prisms, containing five molecules of water (41.7 per cent.) of crystallization. This quantity is inherent to the salt and chemically combined and is therefore not an adulteration. When the crystals are exposed to heat, they undergo aqueous fusion, and then dry up to a white mass, decomposing then with the evolution of sulphurous acid and sulphur, which takes fire, and in burning away leaving a residue of neutral sulphate of soda and a trace of sulphide. The hyposulphite forms a white precipitate with chloride of barium in concentrated solutions, but on sufficient dilution redissolves, showing thus the absence of sulphate of soda. When dropped into a solution of nitrate of silver a white precipitate is formed, which soon turns yellow and finally black. If however the silver salt is dropped into an excess of the hyposulphite of soda, the precipitate formed is redissolved on agitation and remains clear as long as the excess of hypo exists. The ordinary impurities are sulphate and carbonate of sodium, but these are not harmful in photographic work unless present in very large excess. Like so many of the chemical products we have had before, hypo is a boon to the great manufacturers of soda salts, who are bothered with sulphur compounds, and by means of critical chemical investigation utilize what to them is a great nuisance, to produce our much prized hypo. Surely the chemists should be looked upon as the great promoters of wealth in utilizing the

cast-off and despised things of this world to reproduce the myriads of wonderful reagents and salts that are invaluable to human comfort. But our track is blocked again, and we will only mention the sulphurets and then close this screed. Sulphur forms compounds with the alkalies, with ammonia by passing sulphuretted hydrogen into aqua ammonia, with potash or soda by melting the carbonates of these alkalies. Sulphuret of potash generally comes in solid fused fragments of a yellowish-brown color, readily decomposed by exposure to the air and moisture, being converted into sulphide of hydrogen, hyposulphite, sulphite, and ultimately sulphate. These sulphides are used mostly in photographic work to recover waste silver, though in some cases in intensifying plates.

It is difficult to boil down the subject of sulphur and its compounds to so small a compass, as there is so much romantic interest connectedwith them. Whole books could be written to show their origin, fabrication, and methods in which they are essential to the uses of man.

A Few Photographic Points about the Yosemite Valley.

EXTRACTS FROM AN ADDRESS BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA, DECEMBER 7TH, 1887, BY GEORGE VAUX, JR.

With so much that is stupendous, grand and beautiful, the chief difficulty which one has to encounter is in knowing how to put in his time to the greatest advantage in order to get views of the more celebrated and interesting points. Winding along through the fine old forest, occasional extended panoramas are obtained of the valley of the Merced River, which flows the whole length of the Yosemite, and, leaving it, wanders on amidst mountain ranges to the level expanse of Central California.

Presently through the trees you catch glimpses of a mountain with square cut and perpendicular faces. It is El Capitan. A short distance further the stage stops at Inspiration Point, where the first good view of the Valley is obtained. It is spread out at your feet, and though, owing to a turn in it, the further end and about half of the north side are not visible, you will want to make an exposure or two, showing Bridal Veil Fall, the Three Graces, Sentinel Rock and Dome, the South Dome, Cloud's Rest, and to the left close at hand, the enormous mass of El Capitan. Unless you should happen to have as stage companions a very crusty party, you will find no difficulty in geting a sufficient delay to accomplish all that is necessary, and as the light is admirable at the hour the stages usually pass—about noon—it is best to make the most of it then, for the nicest route on leaving the valley is to follow another way.

Zig-zagging down the mountain side where it would seem almost impossible to build a road, the surrounding walls appear to gain rapidly in altitude. About three-fourths of the way down to the level of the floor is Artist's Point, from which a somewhat similar view is obtained from that at Inspiration, though of course you are looking up to the summits of the various high points, instead of viewing them from more nearly on a level.

Having made the descent, the Bridal Veil is the first point of interest. Leaving this, after passing El Capitan, the Three Brothers, and finally the Yosemite Fall come into view. You are now nearer the upper end of the Valley, and here all the hotels are situated.

By all means do not hurry, but should you be pressed for time, it is possible to get all the most important views in a very short time considering their number.

You reach the hotels about half past one, and will then have the afternoon to look around in a general sort of way.

But before planning in detail, I will just say a word as to the time of year. Let this be as early as the roads are good, say the middle or end of May, varying with the season. As all the streams around the Yosemite are fed by melting snow, if you want to see the water-falls in all their magnificence this is important; for by the middle of June many of them are dried up, and two months later those that are left are comparatively mere dribbles.

The next morning after your arrival, retrace your steps down the road you followed the day before. A mile and a half is about as far as you will care to go. During this trip you get the Cathedral Spires and Rocks to advantage, also the upper side of El Capitan and Three Brothers. The light on the lower side of the former is better in the afternoon, so it is not worth while to go further than is necessary to get the Cathedral Spires. For El Capitan there is the favorite position, showing the Merced in the foreground, which always makes an effective picture. You will have no difficulty in finding the place, as it is but a short distance from the road and easily accessible. If you have timed your excursion properly, this will bring you back to the hotel by about eleven o'clock without hurrying.

The Yosemite Fall is the next thing in order. Perhaps the finest view to be obtained of it, without showing any disagreeable or unharmonious surroundings, is in a meadow by the river bank. Just the right point is a little hard to find. You cross the field in front of what is now Cook's Hotel, following the path for some distance, and then turn to the left till you reach the river, up which you keep till you are certain you have gone too far. Then keep on a little further, and you will come to a point from which the 2600 feet of the fall is in splendid view, framed by trees, a vista cut through which makes this position available. An upright view from this point takes in the river in the foreground, and the Fall covers enough of the plate to make shutter-work quite satisfactory. Among its chief beauties are its ever varying moods as it is swayed back and forth by the wind, whose power on a column of such a length is enormous. Between eleven and one o'clock is the best time for this view. The Lower Yosemite Fall alone also makes a very effective shutter-picture; but owing to its location, it also must be taken in the morning, as it is the first part of the Fall that the sun gets off of, so that unless you have the early part of the day for it alone, you will probably have to be satisfied with a distant view, where it forms but a part, and a small part at that, though over 500 feet high. Should you go there in the morning, however, follow up the trail till you come to an enormous boulder, to the left of which you pass. From just alongside of it a good upright view can be gotten. A viewing lens of the ordinary angle will just take it in nicely. The trip down the valley will pay better however if you have to make a choice between the two.

About two or half-past two take a carriage and drive up the Valley a short distance, cross the river and turn down again. Just after crossing the bridge a very fine view of the North Dome on the one side, and its riven companion, the South or Half Dome, on the other can be obtained. Down about a half a mile further you can get Sentinel Rock to advantage, with a rustic foreground, though there is a rather better point down a little further. From near where the short branch road stops, which leads to the foot of the Yosemite Falls, an effective wide

angle picture of the Falls is obtained, but the point of view is not so attractive as that from the river bank.

It is a little below this point, on the main road, that the view of Sentinel Rock, referred to above, with the river in the foreground is obtained. Not far from the same place, but a little further on you can get a magnificent mirror view of the Three Brothers, early in the season only, for the reflection is in a sort of puddle which soon dries up I believe. Down still further you get a superb view of the square façade of El Capitan. By this time in the afternoon the light is just right.

Crossing the river once more you come out at the foot of the Bridal Veil Fall, the light being full on it. In the afternoon the most beautiful of rainbow effects are produced. From among the rocks between the road and the foot of the Fall a number of fine positions are attainable, though some old pine trees so close at hand as to detract from the height of the Fall are difficult to manage, owing to the rough character of the ground. A little perseverance will overcome them however. The return route to the hotel is the same as has been already traversed more than once.

For the second day by all means take the trip to Yosemite Point, an eminence just above the summit of the Yosemite Fall. It is not necessary in order to get the light to make a very early start for this trip, say 7.30 or 8 o'clock, and do not be persuaded not to take lunch along with you. The trip will take longer than you have anticipated, if you are loyal to your camera, for there are many fine views from the trail on the way up. For a time you are among the underbrush and can see but little, but after gaining an elevation of about 1,000 feet, you come out at Columbia Point, from which you may get a very fine view up the valley, embracing near at hand the Half Dome and Cloud's Rest, while stretched away beyond are the rank and file of the High Sierra, all more or less snow clad, if you are only early enough in the season. The light will be better for this view during the descent.

Continuing a short distance you come to a level space, on about the same altitude as the foot of the Upper Yosemite Fall. If you reach this point on the return not later than half-past two you can get a fine shutter view.

The trail now zig-zags up a very narrow and steep side canon. It is hard work on both nerves and strength, because you feel as if you were going to slide off of your horse. An hour more will bring you to the top, whence by a short walk, followed by a scramble along a narrow ledge where one misstep would send you down a quarter of a mile or more before you would strike, you reach a place where you can look immediately down upon the top of the Fall. There is no room for a camera there however.

Crossing the creek just above the falls and continuing half a mile or more over a disintegrating ledge of white granite, you reach Yosemite Point. Here there are fine views in both directions, showing the valley lying at your feet, with the High Sierra, with which you are now more nearly on a level, in the background. Almost immediately opposite you is Glacier Point, so named apparently because there isn't any glacier there.

You can continue this trip to Eagle Peak, the highest of the Three Brothers, but from all I could learn it is doubtful if it would pay for the extra fatigue.

Whilst the afternoon sun is on the Fall the rainbow effects are beautiful and should not be missed. On the descent the light will be good, though, as I said before, do not leave it too late to get the

Upper Fall, or the Three Brothers will have cut off the sun. Sometimes people try to make this trip in half a day, and it is, of couse, better to do it so than not at all, but a whole day is much more satisfactory.

For the last day, according to my plan, you will need every plate you can arrange for. Making an early start you take a wagon and drive to Mirror Lake to see the sun rise. Before the first ray strikes the water the reflections are wonderful, and by a little activity you can get all the principal ones before the sunlight spoils them. This done the wagon takes you to the foot of the Vernal and Nevada Falls trail. Here you should have arranged for saddle horses to meet you. Before mounting, get the view of the North Dome from the bridge over the stream, with the latter and the majestic trees on its banks as a framework for the mountain; also from just beyond the bridge a very effective view of Glacier Point.

A short ride up a good trail brings you to the Vernal Falls. The light on these is only good in the afternoon, so that at this time of the day the view is unsatisfactory, but by delaying as long as the guide will allow, you may be able to get a picture.

Remounting, a steep scramble followed by a descent takes you over a ridge from just beyond whose summit a pretty panorama of the Nevada Fall, Liberty Cap, and Mt. Broderick is obtained. The view of the back of the Half Dome is also very good, but there are finer ones later.

Mrs. Snow, who keeps the little Casa Nevada, will soon get you up a very comfortable lunch, and while she is preparing it, or better if there is time, after you have lunched, you will have a grand opportunity to get the Nevada Fall to perfection, perhaps the most exquisite waterfall in the world. The best view is from near the foot of a large pine tree on the foot path from Snow's down to the stream. Do not fail to follow on across the log bridge and up as close to the Falls as you can go without getting soaked. The view will very well repay you, though there is no opportunity for a picture owing to the spray.

The trail follows up a very steep canon a short distance from the Falls, doubtless once the bed of the stream. While the ascent lasts it is probably the steepest that you will encounter during the trip to the Valley, unless you should climb some of the higher monntains. If you have a good head, get the view down on top of the Fall from the summit. The place from which it is obtained is a very dangerous one, but by lying down flat there is but little risk.

From this point there is a long ascent, but among the trees can be caught many fine views of the Liberty Cap, Half Dome, Cloud's Rest, and finally of the High Sierra. Mt. Starr King is also very prominent from this trail. Crossing the Illilonette, or South Fork Canon you keep on to Glacier Point. About half a mile from the latter is the point from which to get a magnificent view of the Half Dome, though this shows the back or rounded side.

There will still be time for you to get the genial McCauley, who keeps the little hotel, to stand on the projecting rock, suspended, like Mahomet's coffin, between heaven and earth, some 3,200 feet from the latter, and have his picture taken; and possibly, if early enough in the season, also to visit Sentinel Dome, though it would be getting toward night.

You will probably find that the liverymen prefer not to have you take this trip, as it is a hard one on their horses, but there is no difficulty in accomplishing it, and with comparatively little fatigue.

If you do not care to visit Sentinel Dome you can either descend the trail

into the valley immediately or stay over night at Glacier Point and take the stage, which leaves there early in the morning and connects with the regular road at Chinquapin Flat. The former method affords many fine views, but the trail though good is steep, and it will be most too late to get any photographs.

Of course there are many other points which I have not mentioned that are worth a shot, but they are far too numerous to be alluded to here.

The Mariposa Grove of Big Trees is about 30 miles from the Valley. As you stay over night at Clark's Wawona Hotel but 7 miles from them, the trip to them is usually made during the afternoon of the day that you leave the Valley, but this means to drive straight along without stopping to take pictures. It is not difficult however to arrange to take a day to it, providing yourself with a lunch before leaving the hotel. For the Grove there are no particular hints necessary except to give plenty of time. It is darker than one is apt to imagine. I found on an average view about 15 seconds on an Eastman's film with F 22 stop was about right, though of course there is considerable latitude.

In conclusion I would say that a wide angle lens is indispensable; as the heights with which you have to contend are so great that a viewing lens is, in most instances, of but little more use than to try your temper. Upon my first visit I only possessed the latter, so that I can speak from experience.

I cannot close this rambling sketch without acknowledging the kindness of George Fiske, the local photographer, but for whose kindly advice I should not have found some of the most artistic views in the Valley. He is always ready to help an amateur along, and any such visiting his domain cannot fail to derive benefit from his timely hints.

Preparation of Platinum Prints Without Development, By Direct Printing in Frame.

CAPTAIN G. PIZZIGHELLI.

Hitherto the preparation of platinum prints by direct copying has been attended with certain difficulties which have operated against the popularity of the method, the brown color of the image offering but little contrast to the yellow tone of the paper. In the manipulation of the process, Hübl and myself have in our time felt the disadvantage, and have made repeated experiments to remedy the evil, without however obtaining favorable results. I have repeatedly employed myself with this task, but it is only very recently that my efforts have been crowned with success, so as to present a process easy of manipulation, by which direct prints can be made upon platinum paper by the simple method of printing in the frame.

The principle is as follows:

1. By adding a viscous medium to the sensitive solution the penetration of the latter into the fibre of the paper is prevented.

2. By adding directly to the sensitising solution one of those substances which may be used as a developer, a reduction of the platinum salt is effected in the copying frame by the influence of the dampness of the air.

The advantages of the new process are therefore very considerable, inasmuch as there is no necessity of a previous preparation of the paper. The progress of the printing may be watched as with ordinary silver prints. Development is dispensed with. A simple and short time washing of the prints first in acidified water and then in ordinary water is sufficient to complete the picture.

SENSITISING OF THE PAPER.

Select a quality of paper smooth or

grained according to taste, Rives & Steinbach's, of Malmedy, to be preferred. The best material for making viscous the sensitising solutions I have found to be a solution of gum arabic and arrowroot. The former yielded me better results than the latter.

The proportions are as follows:

I. Gum arabic, ... 50 g.
Distilled water, . . . 100 c.m.

II. Arrowroot, ... 2 g.
Distilled water, . . . 100 c.m.

This last is made into a paste as usual.

Before using mix.

Sensitising solution . . 2 volumes.
Gum solution (I.) . . 1 volume.

OR,

Sensitising solution . 1 volume.
Arrowroot paste (I.) . 1 volume.

The mixture is well stirred or rubbed to a fine homogeneous consistency and strained through muslin.

This mixture is applied, the paper dried and kept in the chloride of calcium tube as in the old platinum process.

The Sensitising Solution is made as follows:

1. The Iron Solution.

To the normal iron solution is added in the dark, with repeated shaking, as much neutral oxalate of soda or ammonium as will dissolve at ordinary temperature.

The proportion of the above salts is as follows:

Normal solution of iron . . 100 c.m.
Neutral ammo. oxalate . . 18–20 g.

OR,

Normal iron solution . . . 100 c.m.
Neutral sodium oxalate . . 15–18 g.

The original brown gray color of the Ferri-oxalate passes, in consequence of the formation of the corresponding double salts, into a beautiful emerald green. The point of saturation is known by a slight turbidity of the solution. The operation is discontinued immediately upon the manifestation of the turbidity, the mixture shaken for a little while, set aside, and finally filtered.

The proportion of either of the above solutions to the Platinum solution is, 1–6.

The formula for ordinary conditions is:

Platinum Solution 1–6, . . 24 c.m.
Ammonia Iron Solution or
Soda " " . . 22 c.m.
Gum Solution I. . . . . 23 c.m.

With the use of the ammonium oxalate the image is blue in tone; the sodium oxalate gives brown tones. The former also gives weaker pictures than the latter. As regards sensitiveness I have not noticed material difference. I cannot definitely speak of the durability of the paper, inasmuch as only a few weeks have elapsed since my experiments. Paper which has been preserved since that time, however, shows no deterioration whatever.

The addition of chlorate potassa may be made as in the old process. Of the effect of an increase or diminution of the amount of iron in the sensitising solution I cannot definitely speak without first making experiments.

The copying of the prints offers no difficulty. A certain dampness of the paper is necessary to success, as is the case with silver paper.

The paper after removal from the chloride of calcium tube should be laid about for some time in the dark room before use to imbibe a certain amount of moisture.

Either print until the image comes up fully. The impression must not be any stronger than is looked for in the final result.

Or, the printing is continued only so far as is necessary to bring out the entire picture, or there will be a falling off in the half tones. The print is taken from the frame and developed in a weak, cold solution of the tartrate, oxalate, citrate, or carbonate of potassa or soda.

A good developer is made as follows:

Saturated Solution Soda . . 5 c.m.

Distilled Water . . . . . 100 c.m.

The print is dipped in this and allowed to remain until all the details come up.

The printed and developed pictures are next placed in a bath consisting of

Hydro-Chloric Acid . . . 1 c.m.

Water . . . . . 80 c.m.

until the yellow color of the paper disappears, and then washed for ten or fifteen minutes in water.

The Photographic Society of Philadelphia.

A stated meeting of the Society was held Wednesday evening, December 7th, 1887, with the President, Mr. Frederic Graff, in the chair.

The Secretary read a communication from the Liverpool Amateur Photographic Association, announcing an International Photographic Exhibition to be held in March, 1888, and inviting members to send exhibits.

The death of Mr. Evan Randolph, an active member of the Society, was announced by the Secretary.

The Committee on Membership reported the election of the following active members: Messrs. Henry J. Hand, Emlen Cresson, Dr. Wm. Thomson, and Theodore Fassitt.

The Committee on Celebration of 25th Anniversary reported that in accordance with the plan proposed at the special meeting called for the purpose, a reception in honor of the event was held by the Society at the Penn Club House, on the evening of November 26th, the 25th Anniversary of the date of organization of the Society. In addition to invitations issued to members, a number of distinguished persons interested in photography throughout the United States and Great Britain, including officers of some of the more prominent photographic societies, were invited to be present. The evening was pleasantly passed in social intercourse of an informal character, relieved and enhanced by a collation prepared by the caterer of the Penn Club.

The Committee on American Lantern Slide Interchange requested members to prepare slides immediately for the purpose, so that they might be ready for forwarding to the other Societies at the earliest possible date. A circular on the subject would be issued in a few days.

Nominations for officers and committees for 1888 were made, after which Mr. Bartlett moved that the Society hold a public exhibition of lantern slides during the coming Winter, and that a committee be appointed to arrange all details in regard to same; carried. The Chair appointed Messrs. G. C. Morris, W. A. Dripps and W. H. Rau.

Mr. John Bartlett read a paper on "The Short-Comings of Photography in Relation to Art," followed by Dr. Ellerslie Wallace, Jr., on "Composite Photography." Both papers elicited great interest from those present.

Dr. Howe, admitting what Dr. Wallace had said in regard to Composite Photography not producing the type portraits claimed, referred to its use in detecting forged signatures proposed by Francis Galton, as one which seemed to have a practical value.

In the case of genuine signatures the pen strokes which were most habitual and gave character to the signature, were most pronounced in the resulting composite, while in forged signatures the errors made in imitating these strokes could readily be seen,

Mr. Walmsley called attention to the value of Orthochromatic plates in Photo-Micrography as follows:

In common with other workers in this department of Photography, I have long felt the short-comings of all ordinary gel-

atine plates in rendering the true color valuations of very many microscopic objects, especially those of animal and vegetable tissues, prepared by the modern methods of single, double or even triple staining. Blue, and light violet stains, (so largely in use), were valueless for photograpic purposes, and many of my most interesting preparations could not be reproduced by the camera.

Among others, which I have at various times fruitlessly endeavored to photograph, is a beautiful dissection of the sting and poison sac of the Honey Bee; in which the sting and all external appendages range in color from a bright yellow to dark orange brown, whilst the delicate membrane of the poison bag or sac is stained a bright, delicate blue. The impossibility of making a satisfactory negative from such a preparation on an ordinary gelatine plate will be apparent to every one. I have placed the specimen upon the table and invite all present to examine it for themselves.

I have probably made not less than a dozen exposures upon this specimen, under very varying conditions, as to make of plates, lighting, and length of time, but, with invariably unsatisfactory results.

If the exposure was long enough to give any detail in the darker portions, the blue sac was entirely overdone and obliterated; if on the contrary the time was shorter to suit this portion of the subject, the others were mere silhouettes, so that I gave up the attempt in despair. You will see by the negative now to be passed around, and which is by all odds the best I made on ordinary plates, how utterly unsatisfactory were the results.

A few days since, in talking with Mr. Carbutt on the matter, he suggested the employment of an orthochromatic plate, urging upon me their merits in rendering two-color valuations. I had given no prior attention to this subject, other than reading various articles thereon, which had appeared from time to time in the journals, and had no practical experience in the working of the plates. Mr. Carbutt very kindly furnished me with a package of them, and the same evening I proceeded to put them to the test on this hitherto impracticable subject; making two exposures, the resulting negatives from which I will now exhibit to you, together with prints from them, and one from a negative of same subject made with an ordinary gelatine plate. The results speak for themselves. The first exposure was made without a color screen, and the rendition of the color valuations is, as you will observe, surpassingly beyond that given by an ordinary plate. In the second attempt I interposed a screen of lemon color tissue paper between the light and the object, and trebled the length of exposure. The result is, a negative in which the printing value or capacity of the blue and yellow portions of the specimen are precisely the same; whilst most of the details in the darker brown and orange parts are well brought out.

This gratifying result is so remarkable and interesting, pointing to such an important use for these plates, that I have felt impelled to bring the subject before the society, and to add my mite to the general fund of information we are all striving for.

Mr. Walmsley exhibited three negatives as referred to in the above communication, as well as mounted albumen prints therefrom, and an 8x10 enlargement on Bromide paper under a microscope. Upon the table he also showed the preparation magnified 24 diameters, the same power as that employed in making the photograph. After the lights were turned down, a lantern slide of same subject was exhibited upon the screen.

Mr. Bellsmith, of the Eastman Dry Plate and Film Co., who was present,

called attention of the members to a new product of that company, known as "Eastman's Transferotype Paper."

This is a paper prepared from the same emulsion as the "Permanent Bromide Paper," but in such a way that after developing and washing the contact or enlarged print, it may be laid face down upon any object upon which it is desired to transfer the picture, and after drying under pressure, the paper can be removed by the application of hot water, leaving the print upon the object where it was desired. Transfers may be made in this manner upon opal glass, china plaques, tiles, lamp shades, glass for transparencies and lantern slides, canvas for artists' use, engravers' blocks, &c. Several specimens showing the various uses of the paper, were exhibited by Mr. Bellsmith, and were examined with great interest.

The evening was concluded by an interesting narrative by Mr. Geo. Vaux, Jr., of some "Photographic Experiences in the Yosemite Valley and other parts of the West." A large number of slides were shown on the screen by Mr. Vaux, which graphically illustrated his narrative. The negatives were made on Eastman's films, and were of excellent quality. Many were made from points at high elevations, and rarely visited by photographers.

Adjourned.

ROBERT S. REDFIELD.
Secretary.

DR. ARTHUR H. ELLIOTT, associate editor of Anthony's Bulletin, was married to Miss Kate Paulding Uglow, on Thursday, December 1st, 1887, at New York.

A SPECIAL meeting of the Amateur Photographic Society of Pottsville, was called for Saturday night, December 3d, at the house of Mr. E. F. C. Davis to meet Messrs. W. H. Rau and George W. Ennis, of Phila. A pleasant evening was spent looking over the work of the travelers. Mr. Shaffer showed an ingenious vest camera which is made in Germany. It has a focusing arrangement and holds five small *square* plates instead of the one round plate used in America. One of the travelers showed a shutter of his own construction for both time and instantaneous exposure. Mr. Davis used a new dissolving lantern, contructed by himself. The light is fed from tanks of gas in the basement, which are arranged ingeniously to give an even and regular pressure. It worked admirably. The meeting closed with an exhibition of lantern slides, some contributed by the members, others by W. H. Rau, made from his negatives. A description was also given of the journey to Petra, the pictures of which were made by W. H. Rau.

THE Eastman Company has just introduced a novel and most beautiful style of photograph. It is called Transferotype Paper. It is easy of manipulation and the results obtained are most charming. It resembles the ordinary bromide paper, but differs from it by being transferable to glass, porcelain, silk, canvas, etc. It is not necessary that the surface to which it is transferred be flat. It may be adapted to any curveature, and so may be made useful in decoration of lamp shades and other ornaments.

Transferred to canvas it presents a beautiful appearance and offers a suitable surface for artistic coloring.

Contact or enlarged prints are made upon this paper in precisely the same manner as upon the well known "Permanent Bromide Paper" (the same emulsion being used for both). After washing the print is laid face down upon the object to which it is desired to transfer the picture; after drying under pres-

sure the paper is removed by the application of hot water, leaving the print upon the object where it was dried. The operation is simple, easy and certain.

The Transferotype paper will become popular at once.

EDITOR AM. JOUR. OF PHOTOGRAPHY:

By unanimous vote of the Executive Committee of the Photographers' Association of America, the subject "Hiawatha" has been selected for illustration in making pictures for the Blair Prize Cup Competition for the Convention of 1888.

H. S. BELLSMITH,
Secretary.

THE Photographic Society of Philadelphia celebrated its twenty-fifth Anniversary on the evening of November 26th, by an informal reception at the Penn Club House. About ninety members gathered together and a very enjoyable evening was passed in conversation. A collation was served, the table being graced with a camera sculptured from a block of ice.

The Philadelphia Society is the oldest in the country, and numbers amongst its members many whose names are associated with the progress of the science during the last quarter of a century.

A CONTEMPORARY in commenting upon photographs of rainbows, speaks as if they were rather novelties, possible only for the highly sensitive gelatino-bromide film. We are not very old in the art, but have quite a decided recollection of some fine atmospheric effects, the rainbow included, obtained by the old wet collodion process.

The following extract is from the San Francisco *Evening Bulletin* of February 12th, 1868:

"A new Yosemite series has recently been taken by a photographer, who hides his name under the significant classicism of "Helios." These views are taken from fresh points selected with a nice regard to artistic effect, and illustrating the valley and its cliffs and falls more variously than any previous series. There are effects in some of the views which we have not met before. The plunging movement and half vapory look of cataracts leaping 1000 or 1500 feet at a bound are wonderfully realized. Across some of the falls the arching iris is seen, colorless but suggestive, like the beauty of a dead face—the form is there, only the tint and the play of nature is lacking. The cloud effects are caught with capital success. Around and across some of the granite peaks hang wreaths of vapor, transparent and full of airy lightness. In one view the sun, the splendor of his disc veiled by a cloud that yet shows all his form, is made to take his own portrait and mimic in shadow the "profuse rays" which he shoots arrow-like athwart the dusk."

THE Instantaneous Flash Light is destined to be something more than a passing novelty. Judging from the excellent results so far obtained, it looks as if the day were not far distant when it would be called into active service by the professional, to secure pictures of people in evening costumes at their homes, and as a supplementary illuminator for dull daylight exposures.

The duration of exposure is but a fraction of a second, and but little ingenuity is required to secure a pleasing lighting of the sitter. Or course no head rest is needed, and the pose is natural. There are no harsh lights nor abrupt shadows if the illumination is properly managed. Besides its application to portrature, it will no doubt be of value in other photographic processes. For copying engravings and pictures in white and black it is most excellent, giving

sharpness and distinctness by the evenness of the illumination.

From some experiments which are being made, we are led to believe that it will also play an important part in orthochromatic photography. The various colored fires which may readily be produced, the reds and the yellows, are, notwithstanding their so-called adactinic colors, remarkably rich in rays which influence the sensitive film, so that the reds, yellows, and other tints usually translated black, can be represented in their proper relations.

It may therefore prove invaluable for the copying of oil, paintings, etc. We believe there is a brilliant future for the Flash Light.

The light from burning magnesium is rich in chemical rays. Bunsen & Roscoe in 1859 *Philosophical Transactions* determined the chemical activity of the light as compared with the sun. They showed that a burning surface of magnesium wire, which, seen from a point at the sea's level, having an apparent magnitude equal to that of the sun's effect at that point, has the same chemical activity as the sun would have if shining from a cloudless sky at the height of 9½° above the horizon. On comparing the visible brightness of these two sources of light it was found that the brightness of the sun's disk, as measured by the eye, is 524 times as great as that of burning magnesium when the sun's zenith distance is 67° 22′, while at the same zenith distance the sun's chemical intensity was only 36½ times as great. Hence the great value of the light in photography. A burning magnesium wire of the thickness of 0.297 mm. evolves as much light as 74 candles of which five go to the pound. It has been calculated that 0.120 of a gram of wire of above size is burned in one minute. To produce light equal to 74 candles burning 10 hours, whereby 20 lbs of stearine would be consumed, it would need about 72.2 grains or 2½ ounces of magnesium. In a state of fine division its activity is increased, and when supplied with oxygen, as in the new mixtures, its value is greatly augmented.

NOVEMBER BARGAIN LIST.

Accessories:

1—8x10 Exterior Ground, good condition, ... 10 00
1—Papier Mache, Fire Place and Cabinet combined, fair condition, reduced to $4 00
1—Universal Position Chair, Crimson Terry; all Attachments except Baby Chair; good as new 30 00
2—Spencer Head-rest 14 00
1—Pharaoh Position Chair . . . 16 00
1—8x10 Eastman's Roll Holder, good as new 20 00
1—8x10 Hough's ground, light left of sitter 12 00
1—8x8 Seavey Ground, new, light right 15 00
British Journal Almanacs for 1878 20
Photo-Mosaics for 1883, ... 20
1—No. 72 Osborne bridge good as new, ... 8 00
1—8x10 Plain ground 4 50
1—Bryant rustic gate 4 00
1—Seavey balustrade 14 00
1—Queen Anne baby lounge . . 8 50
1—Rustic corner chair 5 00
1—8x10 Perfect camera stand . 6 00
1—Knickerbocker stand, with 14x17 top 12 00
1—8x10 Osborne's interior background, new, light left . . . 20 00
1—4x8 Osborne's side slip . . . 7 50
5x8 orange glass developing trays 35
Negative boxes, odd sizes, each . 20
1—Adjustable arm Position Chair 12 00
1—Position Chair, rising back . 8 50
1—Osborne stile, new 4 50
1—4oz. Porcelain mortar and pestle 35
1—6 in. Porcelain mortar and pestle 50
2—4x5 Japan trays and plate lifter, lot 20
Pearl leads, the best retouching point in the market, each . 15
Interchangeable View Albums, 7x10, for 5x8 views, with removable leaves fastened by cord, each 1 35
Job Lot Fine Cabinet Plush Frames, each 60
2—5x8 Instantaneous Shutters, new, each 5 00
8x10 Job Lot Picture frames; write for particulars.

Desiring to reduce our stock, we will sell for a short time.

	PER DOZ.
5x6 Woodbury Dry Plates . . .	80
4¼x6½ " " . . .	65
6½x8½ " " . . .	1 15
6½x8½ Triumph " . . .	85
5x7 " " . . .	55
4¼x6½ " " . . .	45
5x8 Neidhardt " . . .	65
4x5 Bridle " . . .	35

Camera Boxes:

1—5x8 Blair outfit, good as new, 10 00
1—11x14 Blair reversible back, extension front view, box and and 3 holders, ... 40 00
1—No. 48 B, 8x10 Portrait box, double swing and Benster holder, ... 25 00
1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, $40.50, will sell for 30 00
1—6½x8½ camera, with ratchet bed, ground glass and wet holder 6 00
1—4x5 '76 outfit 15 00
1—10x12 Cone View Camera, Double Swing, new 52 80
1—11x14 New Haven Reversible Back Camera, Double Swing, new 44 00
1—14x17 New Haven Acme Portrait Camera, Single Swing, new 46 00
1—½ size Portrait Camera . . . 5 00
1—4x4 Standard Portrait Camera with holder, new 14 75
1—4x5 Flammang revolving back Camera 25 00
1—4¼x5½ No. 202 A. Scovill Outfit 20 50
1—6½x8½ View Camera and Lens 12 00
1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod . 25 00
1—6½x8½ American Optical Co., first qual. View Camera . . 23 00
1—4¼x5½ Ex. qual. Portrait Camera 17 50
1—5x8 American Optical Co., Stereo Camera 25 00
1—6½x8½ Standard Portrait Camera, with holder 13 60

1—5x8 Blair View Camera, single swing 17 00

Lenses:

1—14x17 Harrison wide angle view 18 00
1—4x4 Tench Portrait Lens. This was made by Dallmeyer's foreman and is the same combination as his No. 3, A list, $224.00, will sell for 90 00
1—Finder 3 25
1—Prosch Shutter, No. 2, Pneumatic release 10 00
1—Matched pair German Stereoscopic Lenses, in good order . 15 00
1—Matched pair imitation Dallmeyer Lenses, ... 12 00
1—5x8 Dallmeyer View Lens . . 15 00
1—Woodward Condensing Lens. 10 00
1—4x4 Darlot Globe Lens . . . 25 00
1—4x4 " " " . . . 20 00
1—5x8 Abendroth wide angle view lens 18 00
1—⅓ size L. W. Krantz Portrait Lens 12 50
1—½ size C. C. Harrison portrait lens 5 00
1—¼ size portrait lens 3 00
1—½ size Darlot quick acting Portrait Lens, central stops . 18 00
1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens 40 00
1—4x4 Voigtlander Portrait Lens. 20 00
1—Extra 4x4 Chapman Portrait Lens 20 00
1—8x10 E. A. View Lens . . . 5 00
1—5x8 Darlot View Lens . . . 2 00
1—4x5 Harrison & Schnitzer View Lens 2 00
1—Ross View Lens 5 00
1—H. Fitz Double View Lens, revolving stops 8 00
1—5x8 R. O. Co. Lens, good as new 3 00
1 pair Waterbury Stereo Lenses . 4 00
1—8x10 Voigtlander Portrait Lens 80 50
1—4x4 Dallmeyer Group Lens . 50 00
1—4x4 Walzl Portrait Lens . . 20 00

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THE BEST.

These Lenses are guaranteed to be at least equal, and if critically and scientifically compared will be found superior to the best productions of the most famous makers.

The principle causes and points of their superiority are the following:

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Being made of a quality of Glass which is entirely free from color, they allow more actinic light to pass through them than is usual for lenses of the Rapid Rectilinear type.

SECONDLY—

After The Francaise Lenses have received the cloth polish, which has here-to-fore been the last given by opticians to Lenses of small diameter, they are again polished on a pitch surface in the same careful manner as the best telescope object glasses of late years have been finished.

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THIRDLY—

They are larger in diameter than Lenses by other makers of equal focus, covering the same sized plate. This gives room for more perfect correction of the spherical aberration than is possible with Lenses of smaller diameter and at the same time allows the admission of an additional number of light rays, consequently greatly increasing their value as Portrait and Instantaneous Objectives.

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Pantagraph Rapid Rectilinear Lenses.

Catalogue No.	Size of Plate.	Diameter of Lens.	Back Focus.	Equivalent Focus.	Extreme Angle	Price.
P-41.	3¼ x4¼ ins.	⅝ ins.	4 ins.	4⅞ ins.	80°	$ 10 00
P-42.	4 x5 ins.	1 1-16 ins.	5 ins.	5¾ ins.	78°	12 00
P-43.	5 x8 ins.	1 5-16 ins.	8 ins.	8¼ ins.	66°	15 00
P-44.	6½x8½ ins.	1¾ ins.	10¼ ins.	11 ins.	66°	24 00
P-45.	8 x10 ins.	2⅛ ins.	13 ins.	13¼ ins.	66°	30 00
P-46.	10 x12 ins.	2½ ins.	15 ins.	16 ins.	66°	36 00
P-47.	12 x15 ins.	2¾ ins.	20½ ins.	22 ins.	66°	48 00
P-48.	17 x20 ins.	3¼ ins.	25 ins.	27½ ins.	66°	60 00
P-49.	20 x24 ins.	3¾ ins.	28½ ins.	31 ins.	66°	100 00

Nos. 1 and 2 furnished in matched pairs for stereoscopic work.

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Try them before deciding on any other make.

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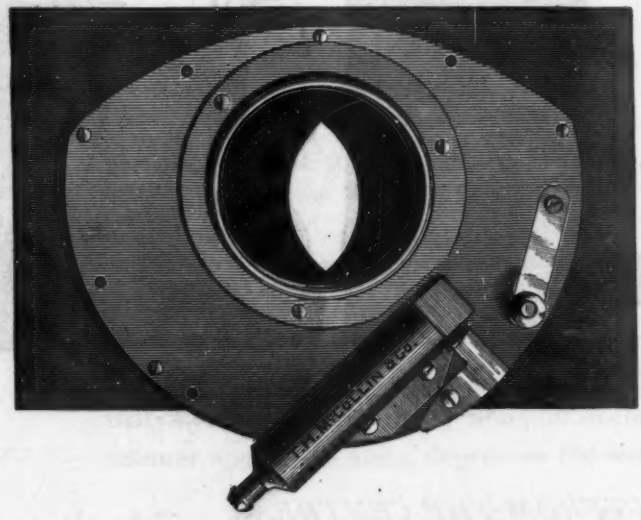

THIS Shutter fastens on the outside of the front board. The flange of the lens is screwed on to the Shutter as shown in the cut, thus placing the lens in front of the Shutter.

It can be changed from an instantaneous to a time Shutter by simply moving the lever shown in the cut, and is exceedingly practical and simple in its workings.

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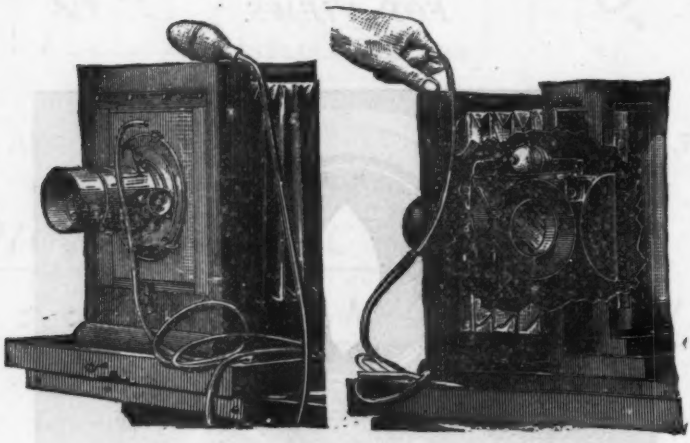

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4 x 5	32	12 x 15	2 68
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4¾ x 6½	48	17 x 20	5 12
5 x 7	52	18 x 22	6 00
5 x 7½	56	20 x 24	7 20
5 x 8	60	22 x 27	9 00
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